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(54) Saddle for vehicles, in particular for racing bikes, mountain bikes, city bikes and the like

(57) The finding concerns a saddle for vehicles, in particular for racing bikes, mountain bikes, city bikes and the like, of the type which comprises a rigid body (2) on which the soft part (3) is applied at the top and the frame (4) for the attachment to the vehicle is applied at the bottom. Such a saddle is characterised in that it foresees that at the bottom of the rigid body (2) a box-shaped covering body (5) is applied, which engages all of the tapered front part and the central portion of the rear part of said rigid body (fig. 1).

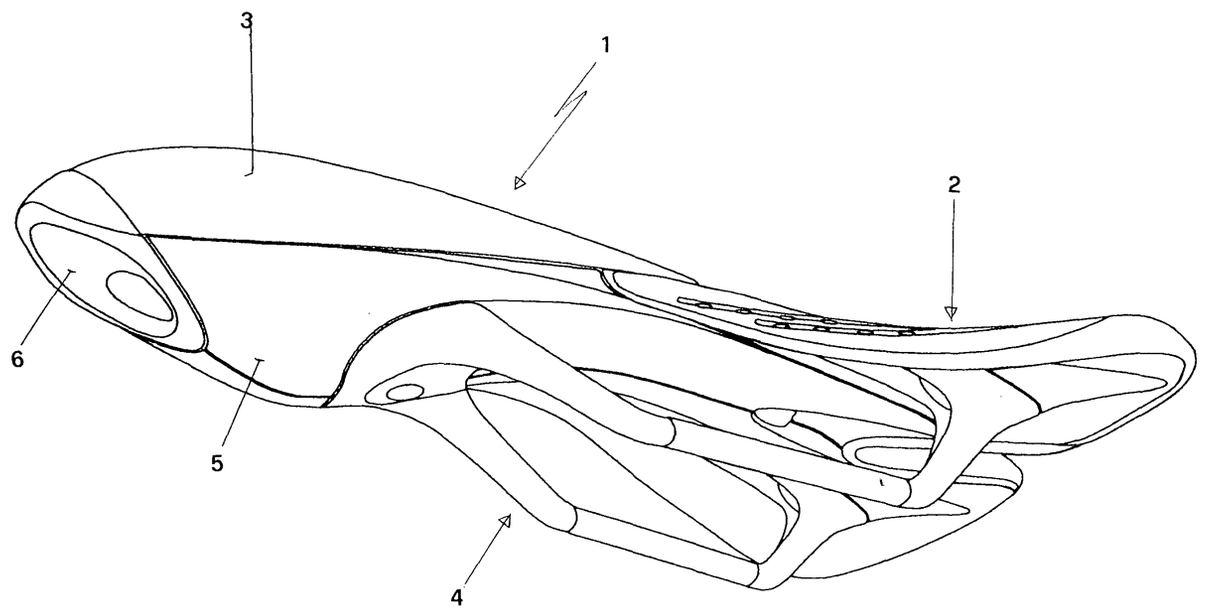

FIG. 1

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Description

[0001] The present finding concerns a saddle for vehicles, in particular for bicycles.

[0002] As is well known, there are on the market various types of saddle and each type has aesthetic and constructive characteristics which make it specific for a well defined type of vehicle.

[0003] In particular, saddles mounted on bicycles have different characteristics according to the type of bicycle: racing bike, mountain bike, city bike or others.

[0004] All types of saddle, in their most simple and schematic configuration, comprise an elongated rigid body, shaped so as to define two portions, a front tapered portion and a laterally widened rear portion.

[0005] The rigid body is made with a single piece usually obtained by injection moulding of plastic material, or else by sheet moulding or else, furthermore, by realising shells of noble fibre such as carbon, Kevlar and the like.

[0006] On the rigid body, which defines the shape and size of the saddle to make it as suitable as possible for the type of vehicle on which it is mounted, an upper padding is applied to make it more comfortable to use, in particular to sufficiently protect the parts of the body of the cyclist subjected to the greatest pressure, which are those situated at the prostate area.

[0007] On the lower part of the saddle a metal frame is applied which acts as an attachment to the frame of the vehicle.

[0008] To obtain greater comfort for the cyclist, saddles have been conceived which, with special constructive techniques, give the rigid body a certain degree of elasticity, reduce its weight and, for particular sporting uses, also generate forced circulation of the air which licks the rigid body itself.

[0009] The primary purpose of the present finding is that of foreseeing a saddle which is equipped with better ergonomics and comfort with respect to that which can be obtained with similar known saddles.

[0010] A further, but not secondary, purpose of the finding is that of foreseeing a saddle which is simple to construct, quick to assemble and low in weight.

[0011] The first purpose is obtained through a saddle in which its ergonomics is enhanced through the special tapered configuration of the front part, which is characterised by a reverse profile with respect to the prior art, in which the point has a "lanceolate" configuration in the vertical direction. Elasticity is also increased through the elastic configuration of the widened rear part and the comfort of the cyclist is also increased with the generation of three distinct interacting airflows which lick the body of the saddle itself.

[0012] The second purpose is obtained through a saddle consisting of a low number of components, all of which can be obtained with simple moulding operations, like injection and/or co-injection, and/or over-injection and/or successive cast moulding and then joined together through clamping or with different clasping elements.

[0013] The constructive and functional characteristics of the finding are made clear through the description of a possible embodiment thereof, given only as a non-limiting example, with the help of the attached tables of drawings, where:

- fig. 1 (Tav. I) represents a perspective view of the saddle according to the finding;
- fig. 2 (Tav. II) represents an exploded perspective view of the components of the saddle according to fig. 1;
- fig. 3 (Tav. III) represents an elevated front view of the saddle according to figure 1;
- fig. 4 (Tav. IV) represents a plan view of the saddle according to fig. 1;
- fig. 5 (Tav. V) represents an elevated front view of the saddle, sectioned according to line V-V of fig. 4;
- fig. 6 represents an elevated front view of the saddle, sectioned according to line VI-VI of fig. 5;
- fig. 7 represents an elevated front view of the saddle, sectioned according to line VII-VII of fig. 5;
- fig. 8 (Tav. VI) represents an elevated front view of the saddle, sectioned according to line VIII-VIII of fig. 4;
- fig. 9 (Tav. VII) represents a view from below of the saddle according to fig. 1;
- fig. 10 (Tav. VIII) represents a diagram of the airflows which lick the saddle according to fig. 1.

[0014] As can be seen in figs. 1; 2 and 3, the saddle according to the finding, wholly indicated with 1, is substantially made up of a rigid body 2, on top of which the soft part 3 is applied and on the bottom of which the frame 4 is applied.

[0015] The first characteristic of the finding foresees that at the bottom of the rigid body 2 a box-shaped covering body 5 is applied, which engages all of the tapered front part and the central portion of the rear part of said rigid body.

[0016] The finding is completed with a front grill 6 which keeps the three components - the saddle (i.e. the rigid body), the soft upper part and the lower cover - joined together by clamping.

[0017] As can be seen in particular in figs. 5, 6, 7 and 10, the front portion 7 of the rigid body 2 and the cover 5 are shaped in such a way that the aforementioned cover 5 constitutes a fairing which defines two longitudinal

channels 8 which flow together at the rear in a single channel 9 so as to allow the formation, when the vehicle is in movement, of a first airflow "V1", which enters through the hole 10, made on the front grill 6 and, after having licked the entire length of the tapered front part 11 of the rigid body itself, comes out from the hole 12 made in the rear end zone of the cover itself.

[0018] The cross section of the passage for the airflow "V1" gradually reduces from the entry hole 10 to the exit hole 12 to create the conditions of the "venturi effect" and thus to contribute, even if minimally, to the forward thrust of the vehicle.

[0019] As can be seen in particular in figs. 2, 4, 7 and 9, the rear part 13 of the rigid body is not covered with the soft part 3 and is made up of a central rib 14, which is the prolongation of the tapered front part 7, equipped at the side with wings 15, with low thickness and equipped with a certain degree of elasticity so as to ensure a soft support for the prostate area of the cyclist.

[0020] On the wings 15 a plurality of through-holes 16 are formed, which are crossed by a second airflow "V2", from the bottom to the top, made up of the airflow "V1" coming out, under slight pressure, from the hole 12 of the cover 5 and the airflow which runs in the lower part of the saddle, more precisely the one which licks the outer surface of the cover 5 itself.

[0021] Moreover, the cover 5 has a suitable aerodynamic shape such as to give the airflow which runs below the rigid body a supporting effect in the rear zone, below the wings of the rigid body itself.

[0022] On the outer surface 17 of the rear part 13 of the rigid body, grooves 18 are foreseen which, connecting many through-holes 16, increase the ventilation effect onto the cyclist's backside.

[0023] As can be seen in fig. 2, a further characteristic of the finding concerns the configuration of the frame 4, which is made up of two small tubes 19 which support, at the front, a single front frame 20, connected through the attachment 21 to the rigid body and, at the rear, two separate frames 22, also connected through the attachments 23 thereto.

[0024] The four mutually removable elements, which constitute the frame 4, are preferably made from titanium. The frames are made by pressure die-casting whereas the small tubes are drawn from titanium wire or another material suitable for the purpose.

[0025] To further increase the ventilation of the saddle the finding foresees that the two rear frames 22 of the frame be shaped so as to generate a third airflow "V3", which comes out from through-recesses 24, associated with through-grooves 25, made on the outer surface 17 of the rigid body.

[0026] In detail, as can be seen in figs. 2, 4, 7 and 8, each of the two rear frames 22 consists of a hook-shaped body 26, which fixes into a corresponding seat 27 present on the lower part of the rigid body, in which a recess 28 is formed, open at the top at the through-recesses 24 of the rigid body so as to convey a portion of the airflow which runs below the saddle into the upper part thereof.

[0027] Observing figs. 1 and 3 a further novelty characteristic of the saddle according to the finding can be seen, which differentiates it from known saddles, since it has a general configuration in which there is a predominant tapered front part 30, which associates with a substantially flat rear part of low thickness 31.

[0028] In greater detail, it is characterised in that the tapered front part 30 has a reverse profile and where the point has a lanceolate configuration in the vertical direction.

[0029] Finally, to further increase the comfort of the backside, the finding foresees that the body of the saddle be totally or partially coated with a soft, opaque and/or transparent material.

[0030] Of course, both aesthetic and productive embodiments which are different to the one described are also possible, in relation to the type of use of the saddle, without for this reason departing from the scope of the claims, defined hereafter.

Claims

1. SADDLE FOR VEHICLES, IN PARTICULAR FOR RACING BIKES, MOUNTAIN BIKES, CITYBIKES AND THE LIKE, of the type which comprises a rigid body (2) on which the soft part (3) is applied at the top and the frame (4) for the attachment to the vehicle is applied at the bottom,
said saddle being **characterised in that**
it foresees that at the bottom of the rigid body (2) a box-shaped covering body (5) is applied, which engages all of the tapered front part and the central portion of the rear part of said rigid body.

2. SADDLE FOR VEHICLES, according to claim 1, **characterised in that** it has a general configuration in which there is a predominant tapered front part which associates with a substantially flat rear part of low thickness.

3. SADDLE FOR VEHICLES, according to claim 2 **characterised in that** the tapered front part has a reverse profile in which the point has a lanceolate configuration in the vertical direction.

4. SADDLE FOR VEHICLES, according to claims 1 and 2, **characterised in that** it foresees a front grill (6) which keeps the three components - the saddle [i.e. the rigid body (2)], the soft upper part (3) and the lower cover (5) - joined together by clamping.

5. SADDLE FOR VEHICLES, according to claim 1, **characterised in that** the front portion (7) of the rigid body (2) and the cover (5) are shaped in such a way that the aforementioned cover constitutes a

fairing which defines two longitudinal channels (8) which flow together at the rear in a single channel (9) so as to allow the formation, when the vehicle is in movement, of a first airflow (V1), which enters through a hole (10), made on the front grill and, after having licked the entire length of the tapered front part (11) of the rigid body itself, comes out from the hole (12) made in the rear end zone of the cover itself.

6. SADDLE FOR VEHICLES, according to claim 5, **characterised in that** the cross section of the passage for the airflow (V1) gradually reduces from the entry hole (10) to the exit hole (12) to create the conditions for the so-called "venturi effect".

7. SADDLE FOR VEHICLES, according to one or more of the previous claims, **characterised in that** the rear part (13) of the rigid body is not coated with the soft part (3).

8. SADDLE FOR VEHICLES, according to claim 7, **characterised in that** the rear part (13) of the rigid body (2) is made up of a central rib (14), which is the prolongation of the tapered front part (7), said rib being equipped at the side with wings (15), with low thickness and equipped with a certain degree of elasticity so as to ensure a soft support for the prostate area of the cyclist.

9. SADDLE FOR VEHICLES, according to claim 8, **characterised in that** on the wings (15) a plurality of through-holes (16) are formed, which are crossed by an airflow (V2), from the bottom to the top, made up of the airflow (V1) coming out, under slight pressure, from the rear hole (12) of the cover (5) and the airflow which runs in the lower part of the saddle, more precisely the one which licks the outer surface of the cover itself.

10. SADDLE FOR VEHICLES, according to claim 1 and one or more of the following claims, **characterised in that** the cover (5) has a suitable aerodynamic shape such as to give the airflow which runs below the rigid body a supporting effect into the rear zone, below the wings of the rigid body itself.

11. SADDLE FOR VEHICLES, according to one or more of the previous claims, **characterised in that** on the outer surface (17) of the rear part (13) of the rigid body (2), grooves (18) are foreseen which, connecting many through-holes (16), increase the ventilation effect onto the cyclist's backside.

12. SADDLE FOR VEHICLES, 'according to one or more of the previous claims, **characterised in that** the frame (4) is made up of two small tubes (19) which support, at the front, a single front frame (20), connected through the attachment (21) to the rigid body and, at the rear, two separate frames (22), also connected through the attachments (23) thereto.

13. SADDLE FOR VEHICLES, according to claim 12, **characterised in that** the two rear frames (22) of the frame are shaped so as to generate an airflow (V3), which comes out from through-recesses (24), associated with through-grooves (25), made on the outer surface (17) of the rigid body.

14. SADDLE FOR VEHICLES, according to claim 13, **characterised in that** each of the two rear frames (22) consists of a hook-shaped body (26), which fixes into a corresponding seat (27) present on the lower part of the rigid body.

15. SADDLE FOR VEHICLES, according to claim 14, **characterised in that** on the body (26) of each of the two rear frames (2) a recess (28) is formed, open at the top at the through-recesses (24) of the rigid body, so as to convey a portion of the airflow which runs below the saddle into the upper part thereof, at the wings (15).

16. SADDLE FOR VEHICLES, according to claim 11 and one or more of the following claims, **characterised in that** the four elements which constitute the frame (4) are removable from each other.

17. SADDLE FOR VEHICLES, according to claim 16, **characterised in that** the four mutually removable elements, which constitute the frame (4), are made from titanium, the frames are made by pressure die-casting or by moulding, through injection and/or co-injection, and/or over-injection and/or successive cast moulding, whereas the small tubes are drawn from titanium wire or another material suitable for the purpose.

18. SADDLE FOR VEHICLES, according to one or more of the previous claims, **characterised in that** it is totally or partially coated with a film of soft, opaque and/or transparent material, which increases the comfort for the backside.

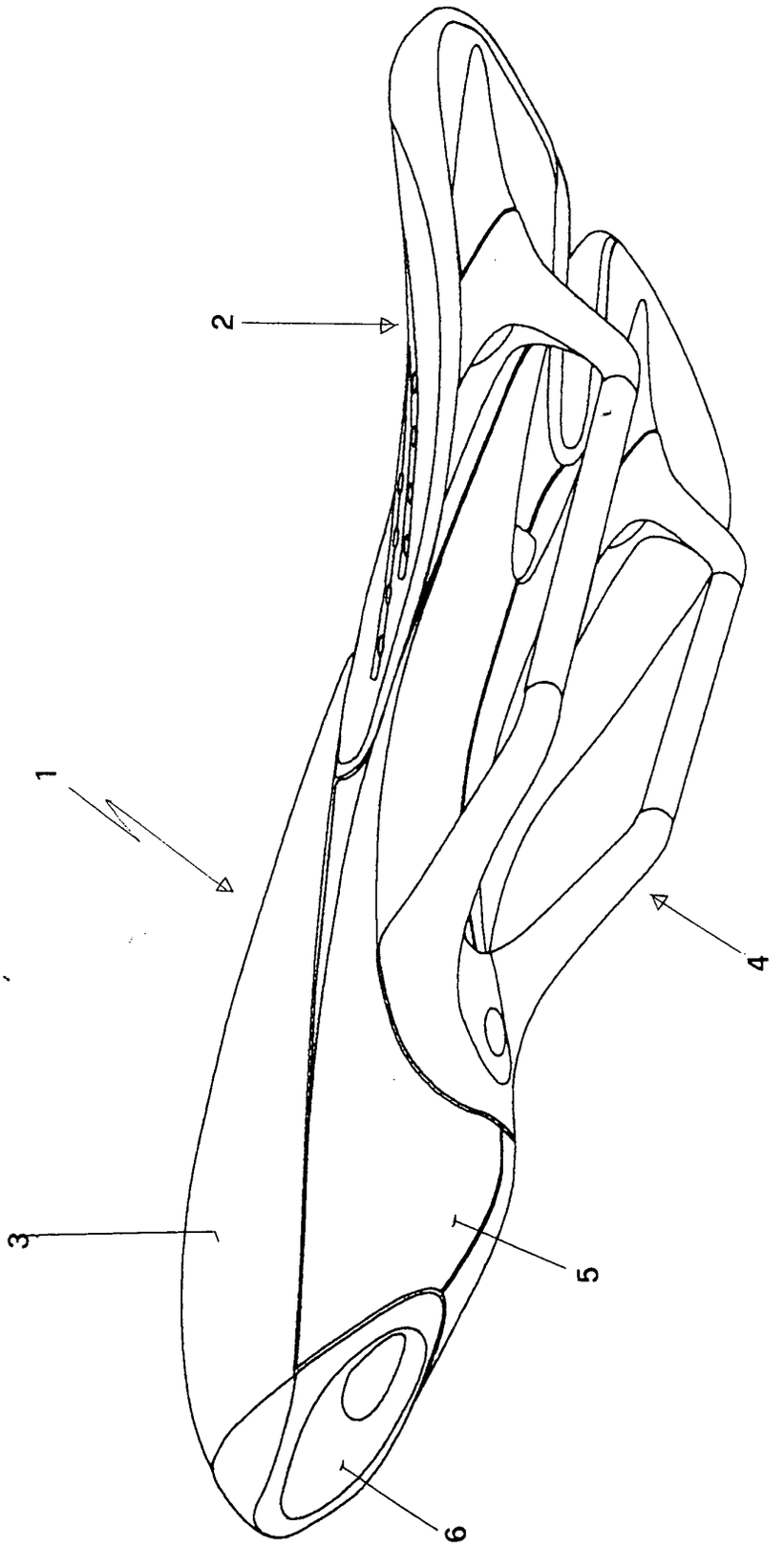

FIG. 1

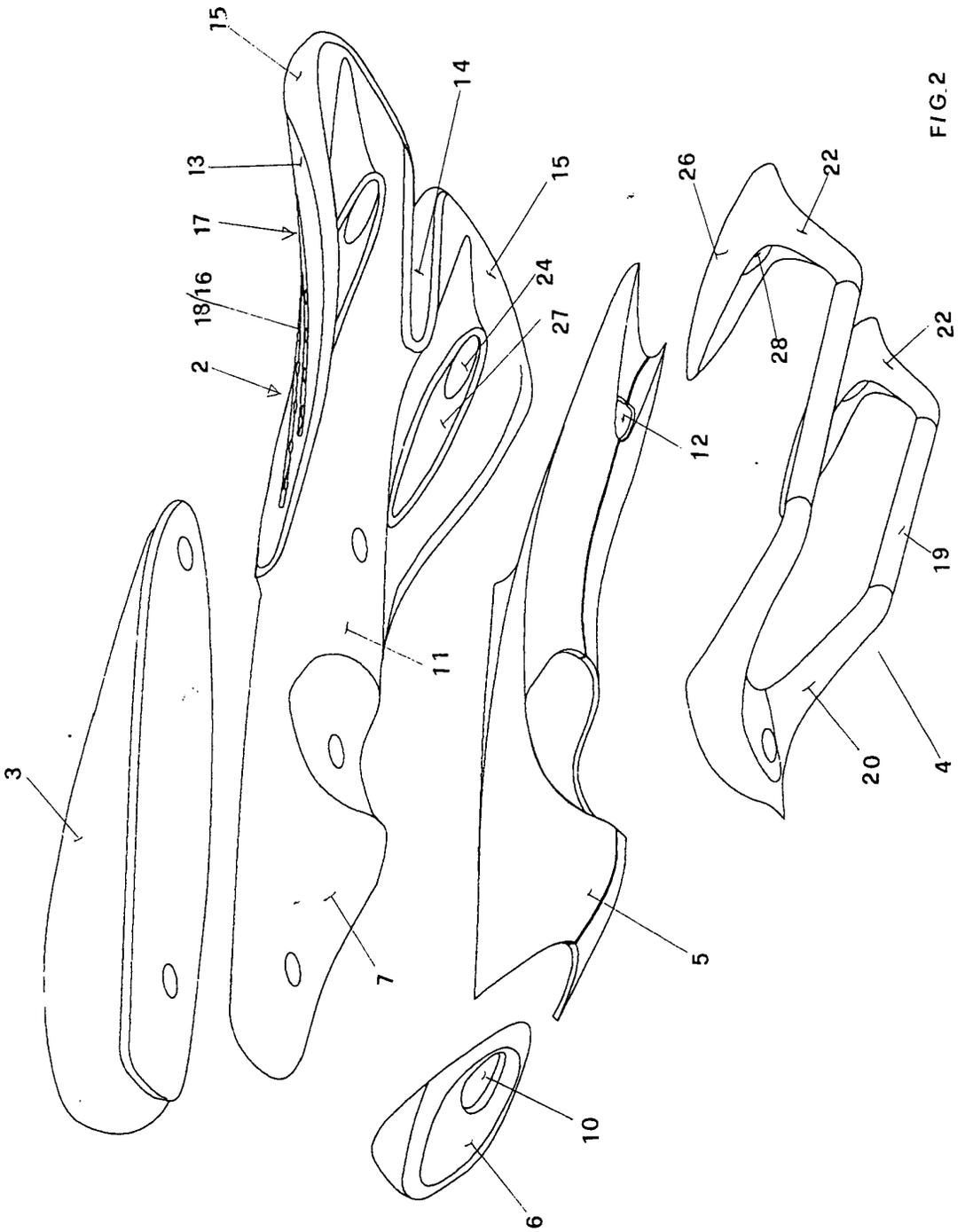

FIG.2

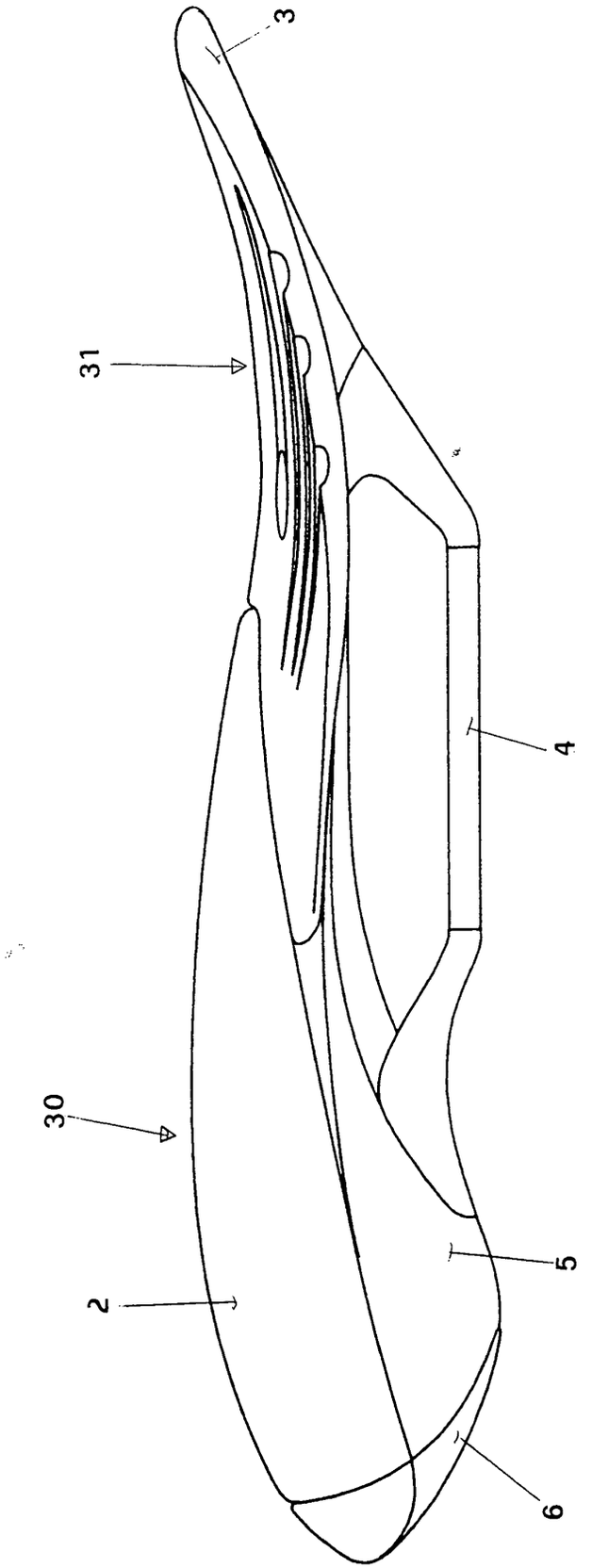

FIG.3

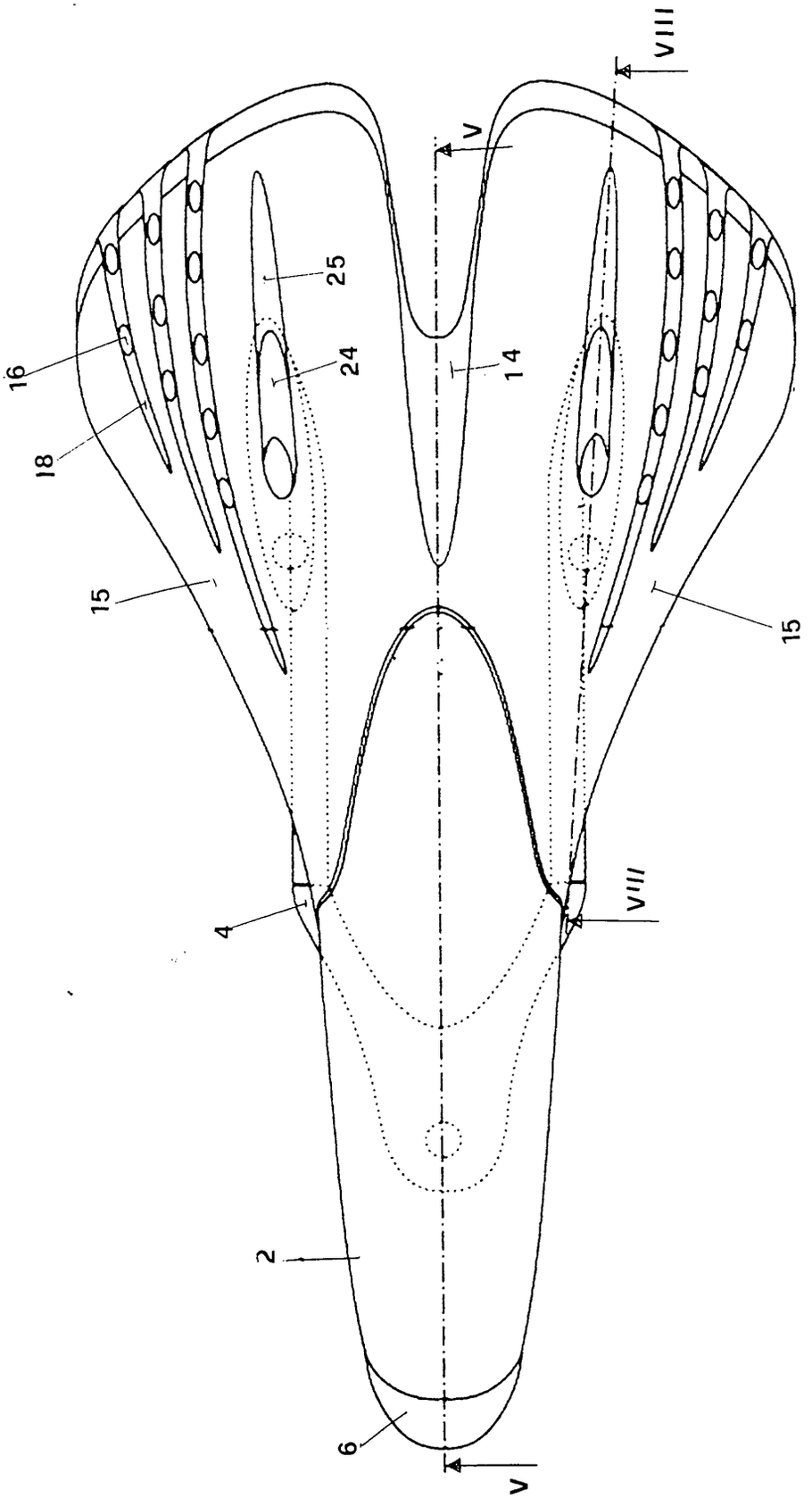

FIG 4

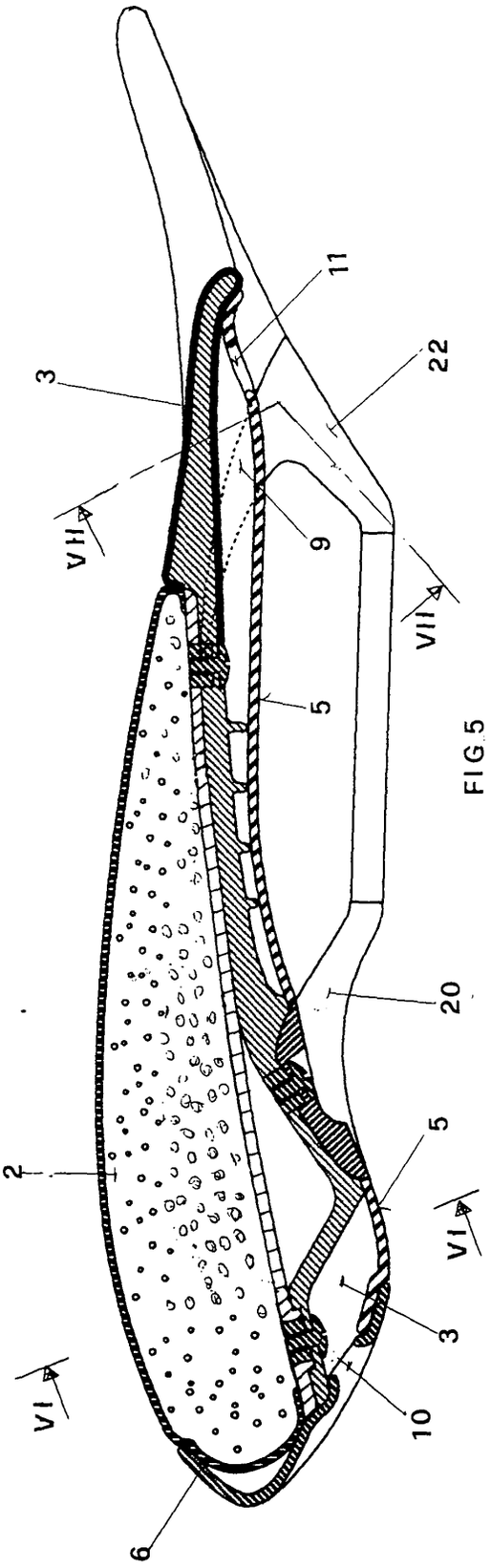

FIG 5

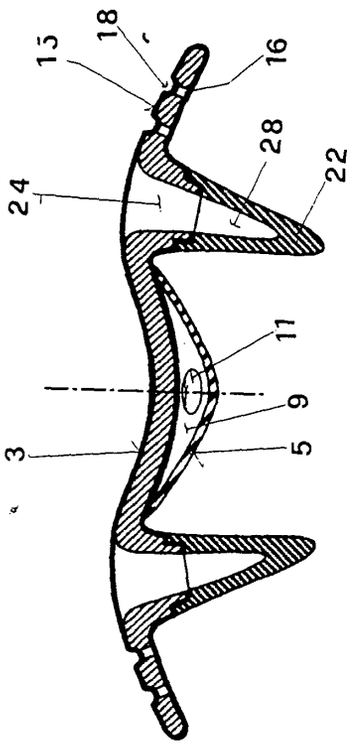

FIG 7

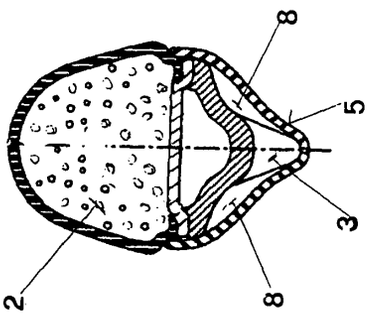

FIG 6

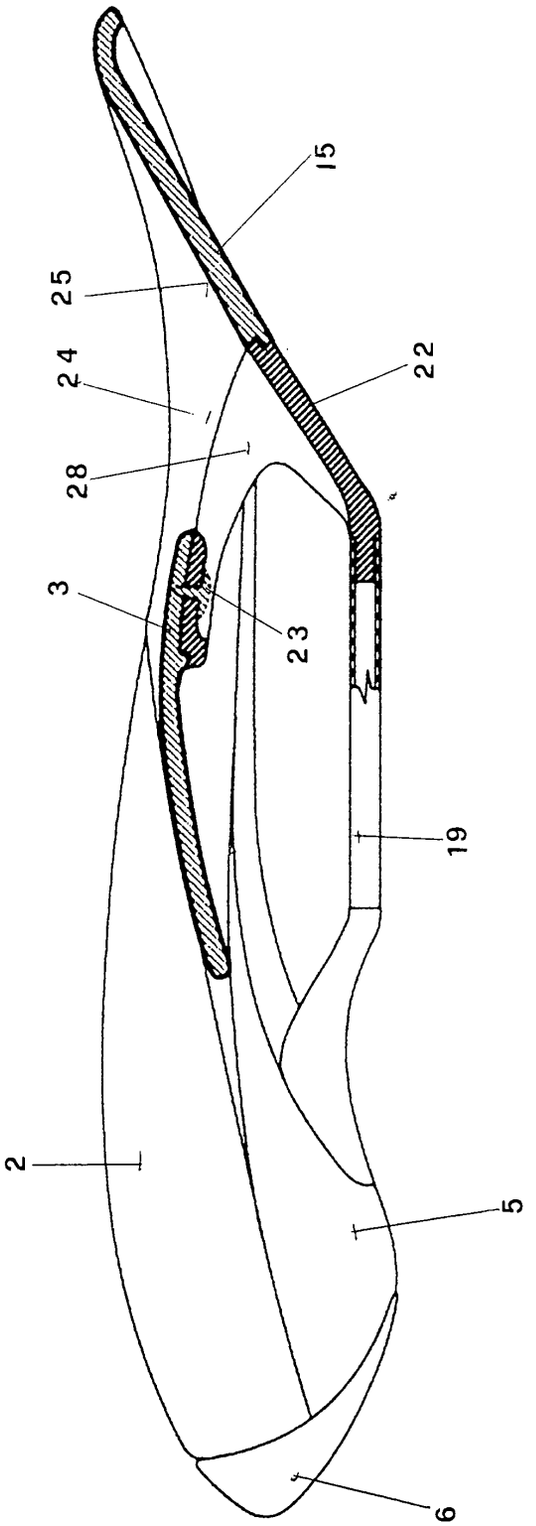

FIG.8

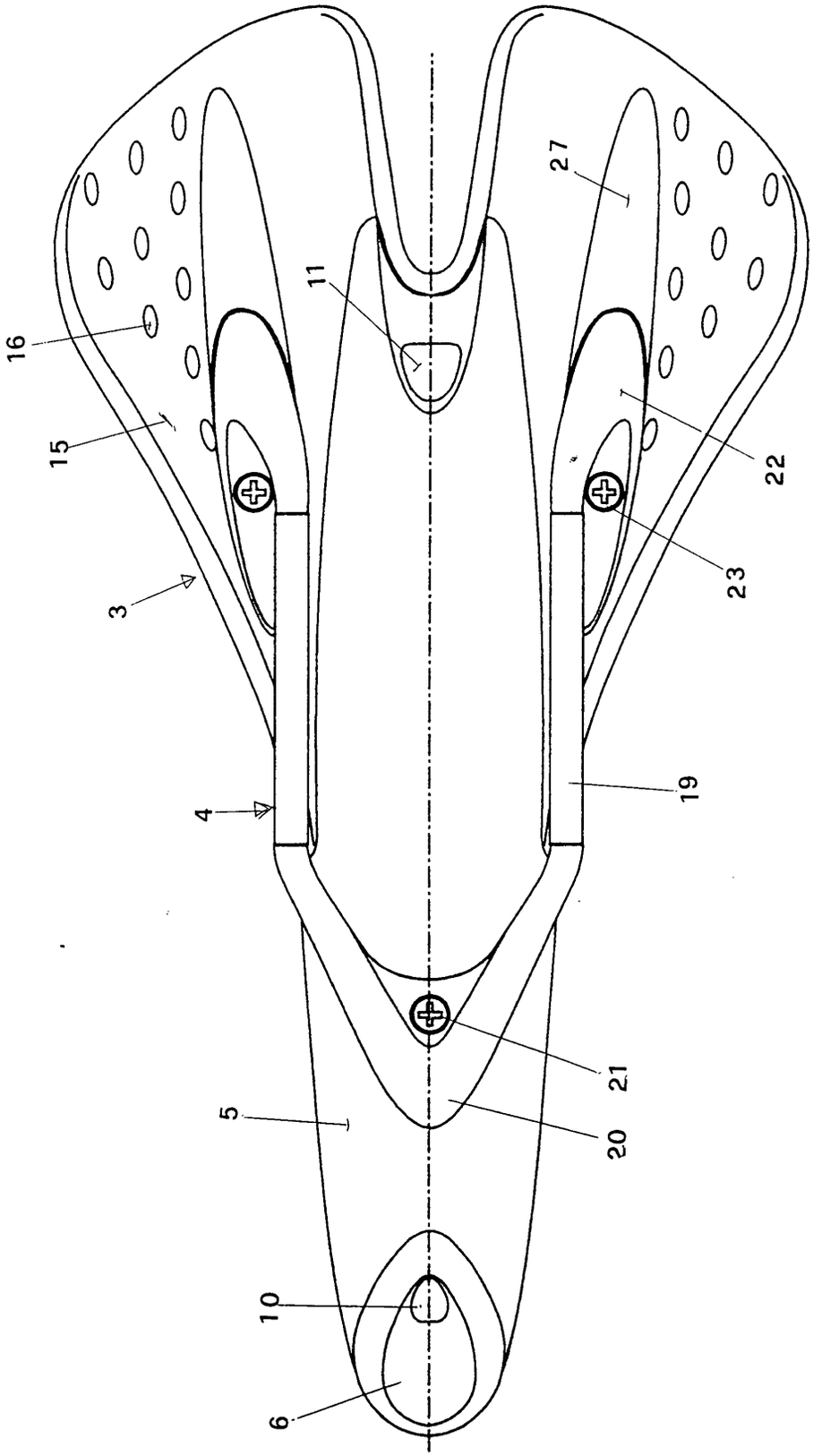

FIG. 9

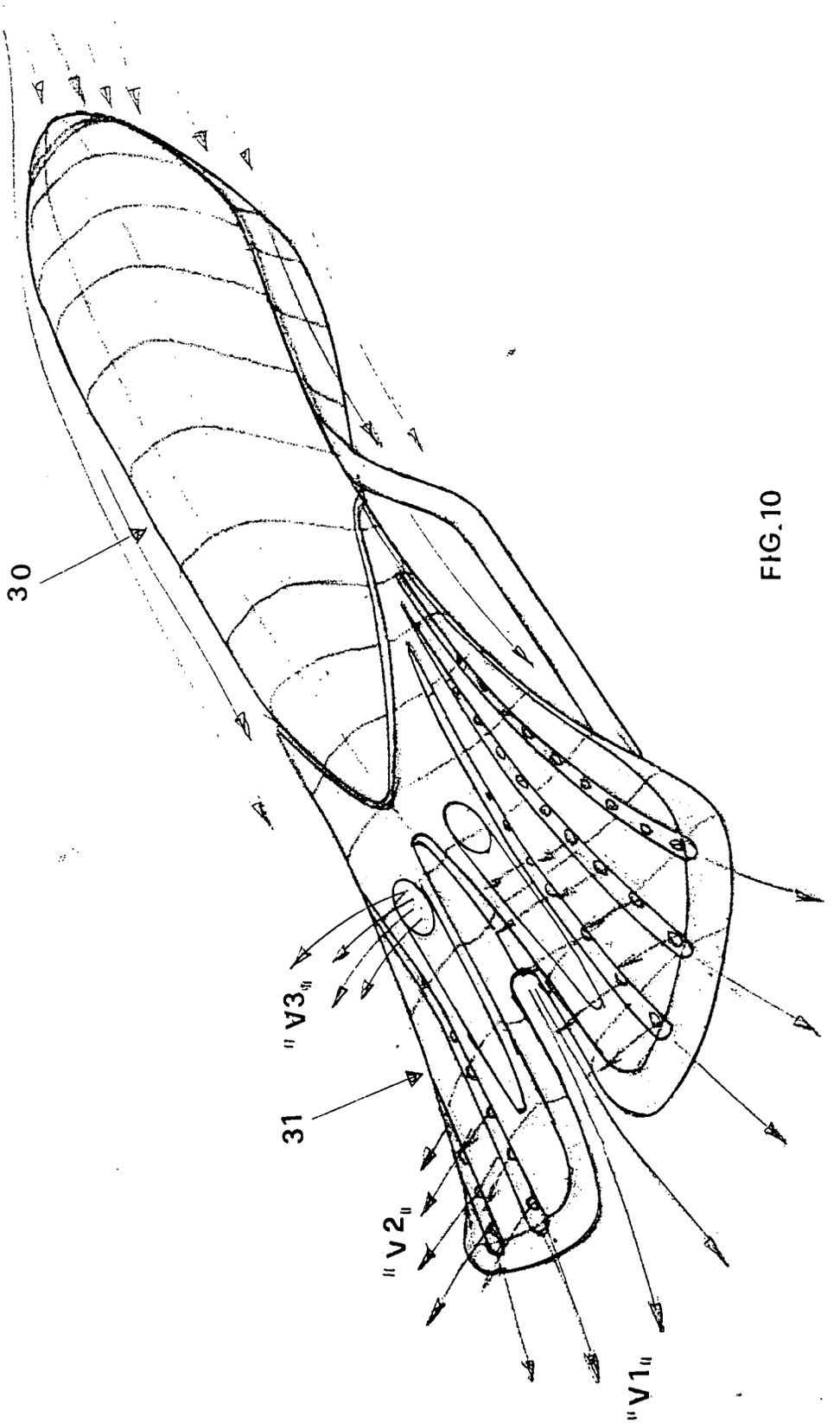

FIG.10

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 01 4134

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 5 356 205 A (CALVERT NATHANIEL ET AL) 18 October 1994 (1994-10-18)	1-3,10	B62J1/00
Y	* column 2 - column 7; figures 1-10 *	18	
Y	US 3 549 441 A (MESINGER ROBERT H ET AL) 22 December 1970 (1970-12-22) * column 3; figures 1-3 *	18	
A	US 4 694 924 A (TAGAMI TOMOYUKI ET AL) 22 September 1987 (1987-09-22) * the whole document *	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

B62J

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	1 September 2003	Jung, W

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 03 01 4134

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01-09-2003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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